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THE "KINGSWAY" SERVICE SERIES.

THE  
MACHINE GUNNERS'  
HANDBOOK

Arranged by  
Lieut. J. BOSTOCK, K.O. Yorks. L.I.

*(Addendum to the Eleventh Edition)*

OCTOBER, 1917

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Barrage Fire  
FOR  
Machine Guns



PRINTED AND PUBLISHED  
BY W. H. SMITH & SON  
(Viscount Hambleden, A. D. Acland,  
C. H. St. J. Hornby, C. S. Andry,  
A. D. Power.)

186 STRAND, LONDON, W.C.2

ONE SHILLING NET



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## BARRAGE FIRE.

The production and application of Barrage Fire by machine guns is rapidly becoming more and more important, and is being extensively used in the present campaign by the Allied Armies with astonishingly good results.

Therefore it behoves all machine gunners to have a thorough knowledge of the methods of producing, applying and moving—as the situation demands—this powerful curtain of machine gun fire from one area to another.

In the following pages are briefly set out the methods now becoming generally used in our Army in France.

The object of barrage fire by machine guns is to :—

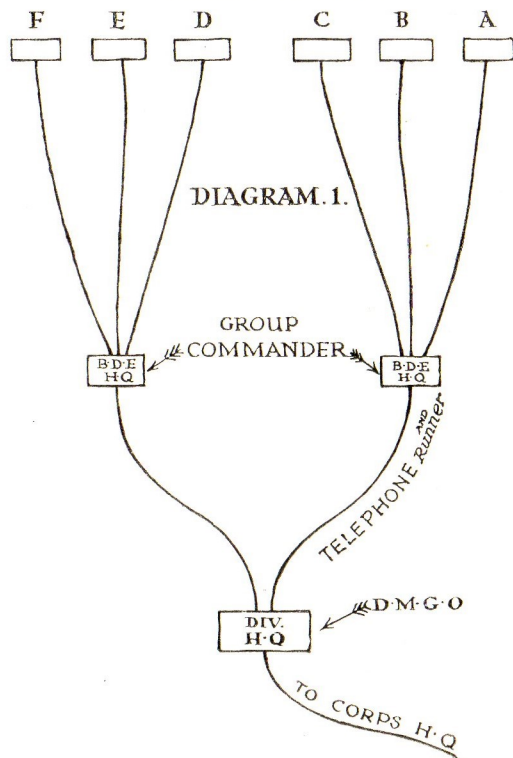
- (1) Assist the infantry during their advance :
- (2) Protect them during and after consolidation.

Machine gun barrages may be Frontal, Enfilade, or Oblique ; Standing or Creeping ; according to the requirements of the tactical situation. In these notes it is only intended to set forth as clearly, briefly and simply as possible the methods of producing and applying the barrage when it has been ordered to be put down and its nature decided upon.

## ORGANISATION.

It is necessary first of all to get clearly into our minds how the guns used for Barrage Fire are organised and controlled. This will be grasped most readily by a glance at the following diagram :—

BARRAGE BATTERIES.



It will be seen that the guns are organised in GROUPS and BATTERIES.

The GROUP should not consist of more than 24 guns, and may be less.

It is commanded by the Group Commander, who is a Company Commander, and his position is at the Brigade Headquarters whose front he is covering.

He is connected by telephone and runner to the Divisional Machine Gun Officer at Divisional Headquarters.

The GROUP is divided into BATTERIES of fire units of 4, 6, or 8 guns. Each battery is under the control of an officer who is known as the Battery Commander, and is in communication with the Group Commander by telephone and runner.

Batteries are lettered from the right, A, B, C, etc., throughout the corps front; in case of a forward move these become A2, B2, etc., for the first move, and A3, B3, etc., for the second move.

Each gun is under the command of a N.C.O. or senior private, who is *not* the No. 1 of the gun. He is known as the Gun Commander.

## DUTIES.

1. The GROUP COMMANDER is responsible for :—

(a) Organisation of his Group into Batteries.



(b) All preliminary preparations, which include estimates of S.A.A., oil, water, spare parts, materials for emplacements, and the formation of dumps and communications.

(c) Issue of operation orders which deal with the location and tasks of each battery. The task is in the form of a table showing the times, targets, rates of fire for each lift and any moves.

(d) Having a fighting map showing the zero lines of each battery and the lifts.

(e) Carrying out the orders of the D.M.G.O.

2. The BATTERY COMMANDER is responsible for :—

(a) Laying out the zero lines of his battery in the position ordered by the Group Commander.

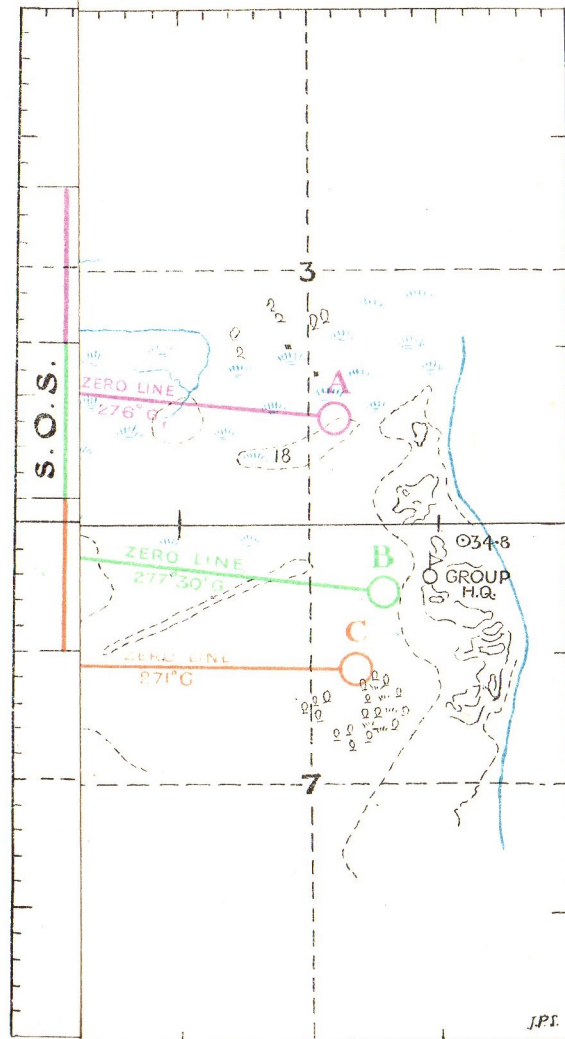
(b) Carrying out the orders of the Group Commander detailed above in paragraphs (b) and (c).

(c) Issuing a barrage chart to each Gun Commander.

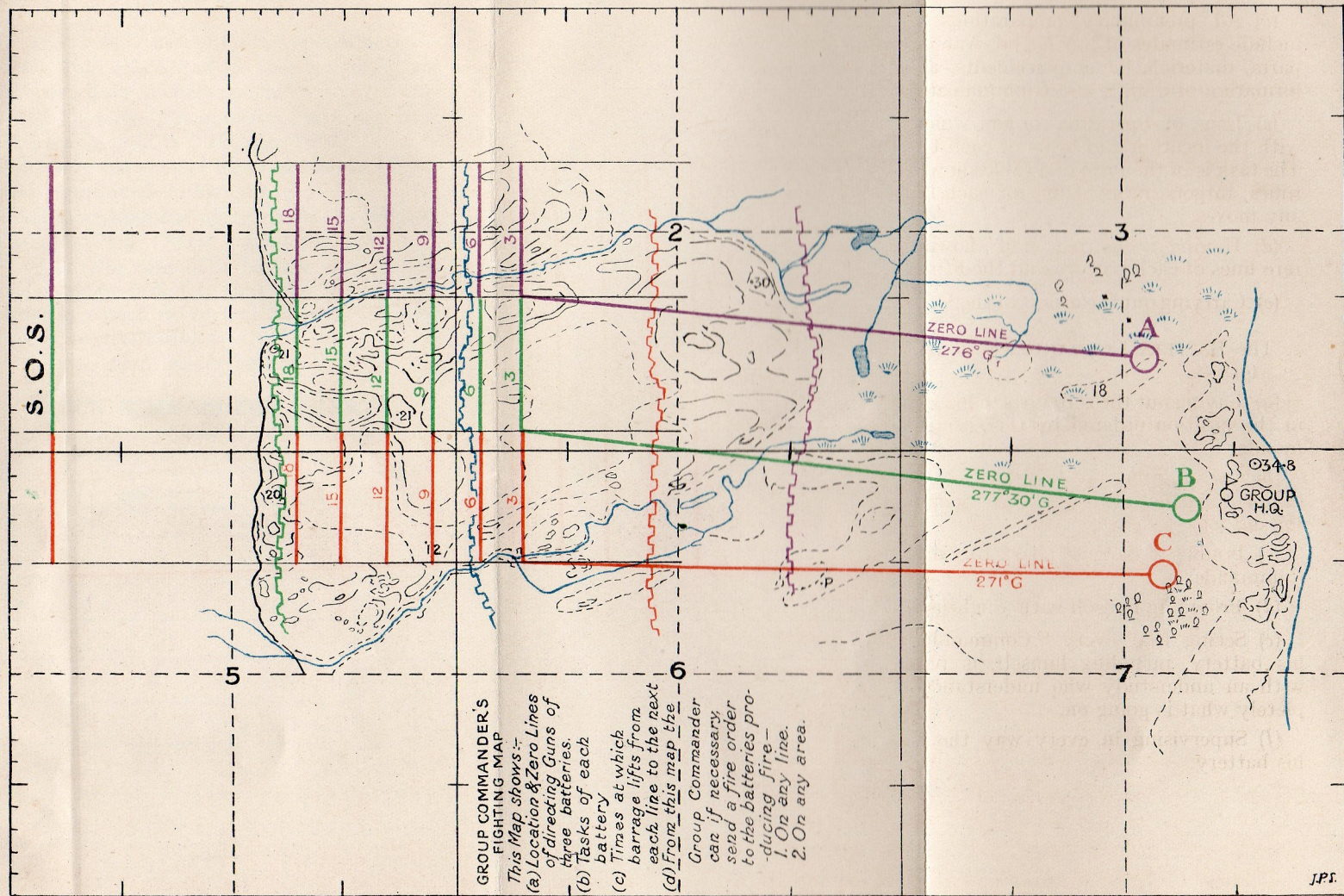
(d) Providing himself with a fighting map.

(e) Seeing that every "Commander" in his battery, including himself, is provided with an understudy who understands completely what is going on.

(f) Supervising in every way the fire of his battery.









3. The GUN COMMANDER is responsible :—

(a) That the fire of his gun is carried out as ordered on his barrage chart.

(b) That the gun numbers carry out their duties as taught in "Barrage Drill."

(c) For the correct elevation being placed and maintained on his gun.

(d) Watching for signals from the Battery Commander or Officer controlling fire.

(e) In the case of a barrage not on the chart being ordered, that the correct fire order is passed down and his gun correctly laid before repeating :—

"No. — Gun, Ready to Fire."

### GUN COMMANDER'S CHART.

No.....Gun.....Battery.....Gun Commander.

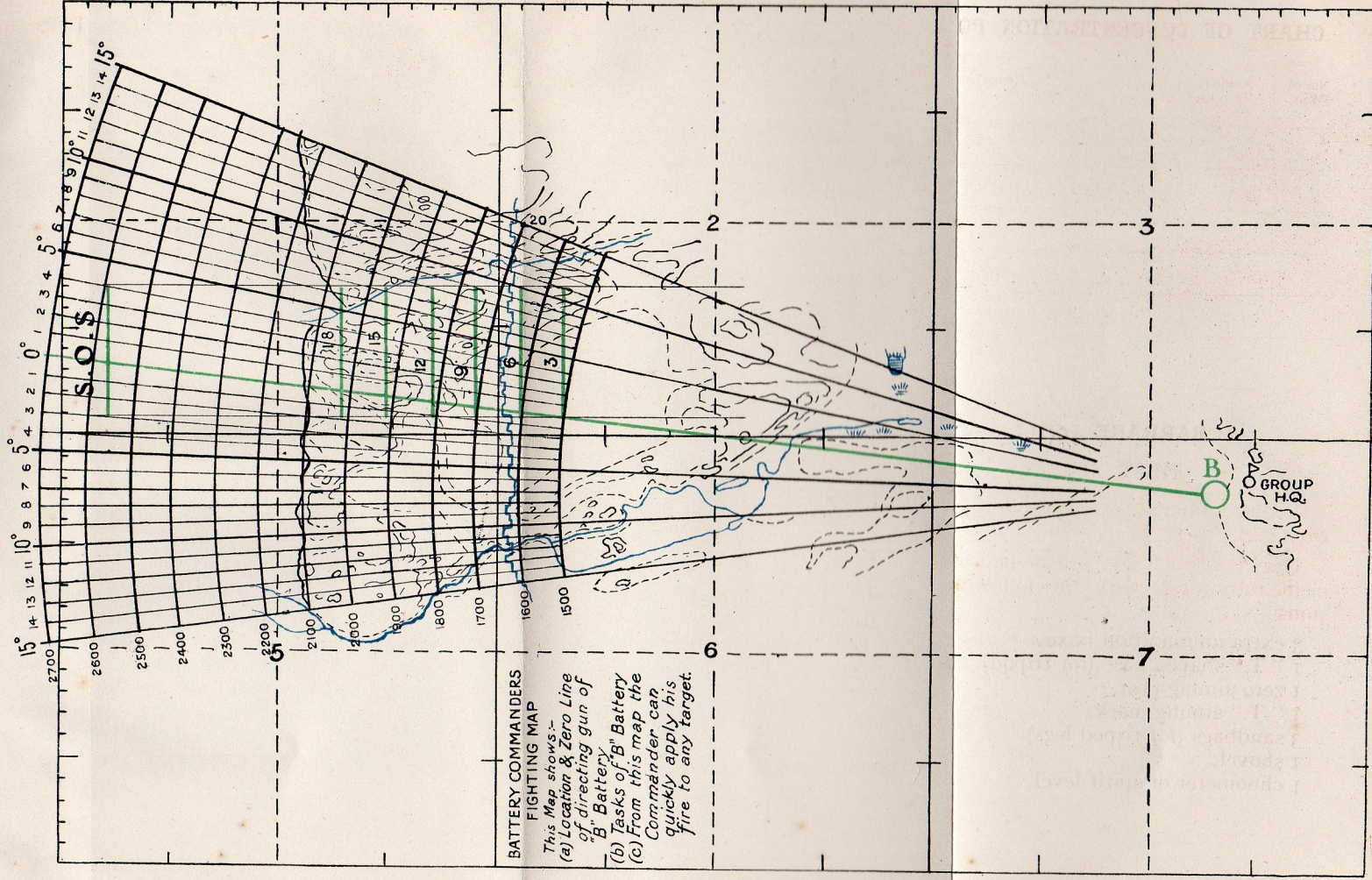
Grid... Bearing of Zero Line.....Sergt. X.

No. of Barrage.	Clock Time.	Zero Time.	Angle from Zero Line.	Q.E.	Traverse.	Rate of Fire.
A.						
B.						
C.						











*Note.*—A “shutter” for controlling fire will be erected by the Battery Commander at the left of the line, and its use explained to the gun numbers.

1. “*Fall In.*”—Teams fall in as in elementary drill, Gun Commanders on the right of No. 1. Teams in line, dressed by the right.

2. *Battery Commander* indicates the reference object, if one is being used.

3. “*Number.*”—As in elementary drill.

4. “*Take Post.*”—As in elementary drill, all numbers standing at “attention.” No. 3 has with him condenser bag (or petrol tin), four boxes of ammunition and aiming posts. No. 4 has “T” shaped base and shovel. Gun Commander takes up position on left of No. 1 with cleaning rod and clinometer.

5. “*Tell Off by Guns.*”—Gun Commanders number off from the right: No. 1 Gun, etc.

6. “*Prepare for Barrage.*”—No. 1 examines the tripod and No. 2 prepares the gun (condenser [tube fixed] for action. No. 3 inspects the ammunition. No. 4 doubles forward with “T” shaped base and shovel. Battery Commander aligns “T” shaped bases, and on the Battery Commander’s signal No. 4 fixes the base firmly in the ground and doubles to the rear. Nos. 5 and 6 fill sandbags and prepare for belt filling under cover,



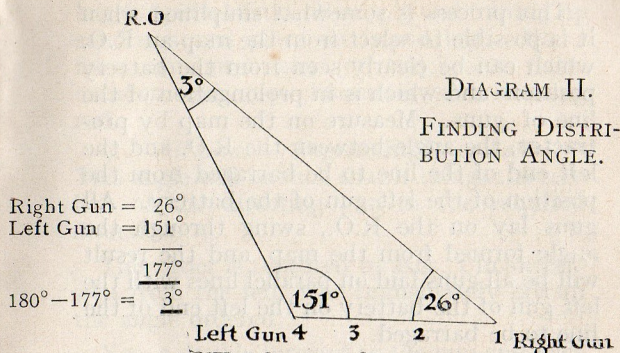
**SECOND STAGE.**

To obtain parallel zero lines in the required direction the following is only one of several methods taught. All methods should be practised.

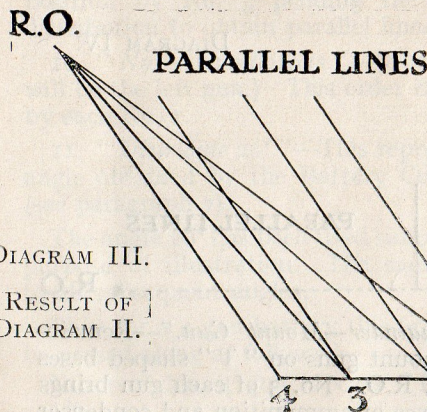
7. "*Flank Guns—Mount Gun.*"—The flank guns mount guns on "T" bases, Nos. 4, 5 and 6 bringing up filled sandbags; guns lay on each other; No. 2 of each gun notes reading on direction dial and signals with his hand to the other No. 2, when this is complete. Both guns now lay on R.O. and note the angle swung through. These angles are passed along to the Battery Commander, who then calculates the distribution angle to obtain parallel lines.

**How to Obtain Parallel Lines.**

To calculate the distribution angle to obtain parallel lines:—Add together the two angles passed down and subtract from  $180^\circ$ . Divide this by the number of gun intervals, and order result as the distribution angle.

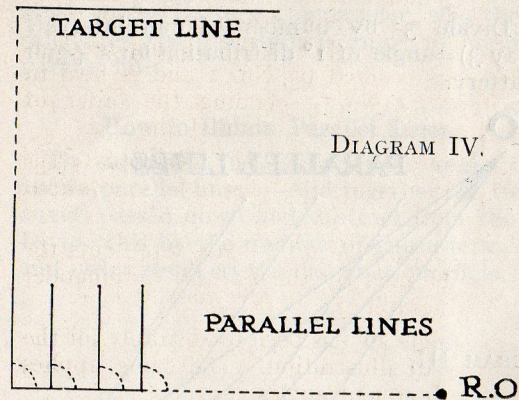


Divide  $3^\circ$  by number of gun intervals  
(say 3) = angle of  $1^\circ$  distribution for a 4-gun battery.





This process is somewhat simplified when it is possible to select from the map an R.O. which can be clearly seen from the battery position and which is in prolongation of the line of guns. Measure on the map by protractor, the angle between the R.O. and the left end of the line to be barraged from the position of the left gun of the battery. All guns lay on the R.O., swing through the angle formed from the map, and the result will be all guns laid on parallel lines with the left gun of the battery on the left end of the line to be barraged.



8. "*Remainder—Mount Gun.*"—Remaining guns mount guns on "T" shaped bases and lay on R.O. No. 3 of each gun brings up four boxes of ammunition and condenser

bag (or petrol tin). Nos. 4, 5 and 6 bring up sandbags and place on tripod legs. No. 2 fixes condenser bag (or tin). Gun Commander takes up clinometer and cleaning rod.

9. "*All Guns — Degrees Right (or Left).*"—This angle will be such that it brings the zero line of the directing gun in the required direction.

This order is repeated by Nos. 1 in succession from the left, who immediately lay off the angle ordered.

Nos. 3 double forward to the gun and pace out 10 yards, carrying zero posts and "T" aiming marks. The "T" aiming mark is placed as ordered by No. 1 and is held in position by No. 3 pending the order of distribution to obtain parallel lines.

10. "*No. — Gun Directs.*"—(Normally this will be the left gun.) This order is repeated by each No. 1.

11. "*Distribute 20'.*"—This represents the angle obtained by the Battery Commander (see paragraph 7).

The angle 20' has been used simply for the purpose of illustration. The same applies to all subsequent angles.

Then for a 4-gun battery this order would be passed along as follows:—

No. 1 of No. 4 gun repeats "*Distribute 20'.*"



No. 3 fixes zero post and "T" aiming mark as ordered by No. 1.

No. 1 of No. 3 gun repeats "20' Right—Distribute 20'," and lays off 20' right on "T" aiming mark. No. 3 then fixes zero post and "T" aiming mark as ordered by No. 1.

No. 1 of No. 2 gun repeats "40' Right—distribute 20'," and lays off 40' right on "T" aiming mark.

No. 3 then fixes zero post and "T" aiming mark as ordered by No. 1.

No. 1 of No. 1 gun repeats "1° Right—distribute 20'," and lays off 1° right on "T" aiming mark. No. 3 fixes zero post and "T" aiming mark, as ordered by No. 1.

The guns are now laid in their parallel zero lines.

Before proceeding with the drill, the Battery Commander will order "Check zero lines," when each gun will be swung back on the R.O., the reading on direction dial noted by No. 2, then swung through the number of degrees originally ordered, and if the line of sight does not pass through the zero post its position will be corrected by No. 3.

THESE ZERO POSTS WILL NOT BE MOVED ONCE PARALLEL LINES HAVE BEEN OBTAINED.

12. "*Stand Clear.*"—Teams fall in 5 yards in rear of gun and stand at ease.

### THIRD STAGE.

#### (Distribution and Concentration.)

13. "*Stand To.*"—Nos. 1 and 2 take up their positions at the gun. The Gun Commander kneels down with the clinometer on the left of No. 1.

14. *Example of Distribution.*—"All Guns 6° Right."—Each No. 1 repeats and lays off 6° right from zero, using direction dial.

"No. 8 Gun Directs."—Each No. 1 repeats.

"Distribute 1° 10'."—This order is carried out as explained in paragraph 11.

15. *Example of Concentration.*—"All Guns 5° Left."—Each No. 1 repeats and lays off 5° left from zero, using direction dial. No. 3 moves "T" aiming mark and holds it in position—5° left.

"No. 8 Gun Directs."—Each No. 1 repeats.

"Concentrate 20'."—No. 1 of No. 8 gun repeats "Concentrate 20'." As no alteration is required, No. 3 at once fixes his "T" aiming mark.

No. 1 of No. 7 gun repeats "20' Left—concentrate 20'," and lays off 20' left on the "T" aiming mark. No. 3 then fixes the "T" aiming mark as ordered by No. 1.

No. 1 of No. 6 gun repeats "40' Left—concentrate 20'," and lays off 40' left on the



"T" aiming mark. No. 3 then fixes the "T" aiming mark as ordered by No. 1.

The remaining guns continue as above, each No. 1 adding 20' to the amount received from the gun on his left.

16. "Load."—As in elementary drill.

17. "Elevation (degrees and minutes)."—Each No. 1 repeats and the Gun Commander lays the gun by clinometer. No. 1 adjusts the tangent sight on the "T" aiming mark and notes the reading.

18. *Example of Combined Sights.*—"Elevation 4° 20'—20' differences."

No. 1 of No. 8 gun repeats "Elevation 4° 20'—20' differences." Gun Commander sets clinometer at 4° 20' and lays gun.

No. 1 of No. 7 gun repeats "Elevation 4° 40'—20' differences." Gun Commander sets clinometer at 4° 40' and lays gun.

The remaining guns continue as above, each adding 20' to the elevation received from the gun on his left.

19. *Traverse* will be 1° right and 1° left, unless otherwise ordered. No traverse for concentration.

20. *Rate of Fire.*—Slow, medium or rapid will be ordered.

Slow=60-75 rounds per minute.

Medium=125-150 R.P.M. (about  $\frac{1}{2}$  belt).

Rapid=250-300 R.P.M. (about a belt).

Slow or medium must be regulated by making pauses between bursts. This can best be done by the Gun Commander glancing at his watch and timing the length of pauses.

21. "Fire."—Shutter lowered (white exposed). Bursts of fire should not be less than 15-20 rounds. No. 1 relays between bursts. *Accuracy in relaying must always be insisted upon.* Unless concentrating, tap between bursts.

22. "Cease Fire."—Shutter released (red exposed). After the first lift or first belt (whichever is shorter), No. 1 unloads and clears gun. No. 2 removes outer casing, tests muzzle cup, cleans the barrel and replaces outer casing. No. 1 oils up, reloads and relays for direction. Gun Commander puts on elevation. No. 2 signals "ready to fire." After every 1,000 rounds No. 1 unloads and clears gun. No. 2 cleans barrel and replenishes water in barrel casing if necessary. No. 1 oils up, reloads and relays for direction. Gun Commander puts on elevation. No. 2 signals "ready to fire."

23. "Unload."—As in elementary drill. Gun Commander reports "No. 1 gun clear," and so on.

24. "Out of Action."—Guns dismounted at firing point. Nos. 3, 4, 5 and 6 double for-



ward and retire with aiming posts, belt boxes, "T" shaped bases, etc.

*Note.*—Numbers should be changed round as frequently as possible.

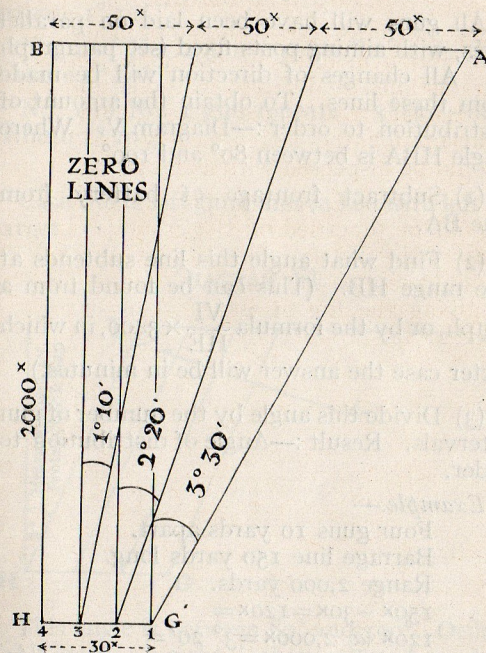
#### FOURTH STAGE.

25. Batteries should be practised in coming into action in different positions, obtaining parallel lines by different methods, and firing by Barrage Charts (see Gun Commander's chart); for the latter case verbal orders should be dispensed with as far as possible.

26. For the final stage of training, batteries should be practised on the ground from the map of the district, and Group Commanders should practise the Battery Commanders in applying the fire of their batteries to any target with rapidity and accuracy.

DISTRIBUTION.

DIAGRAM V.



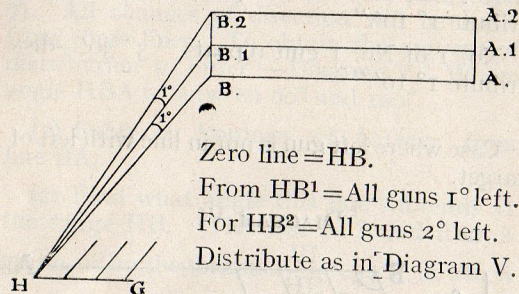






Case where firing creeping barrage, and at each lift the line being barraged is at a different angle to the guns:—

DIAGRAM VII.

**CONCENTRATION.**

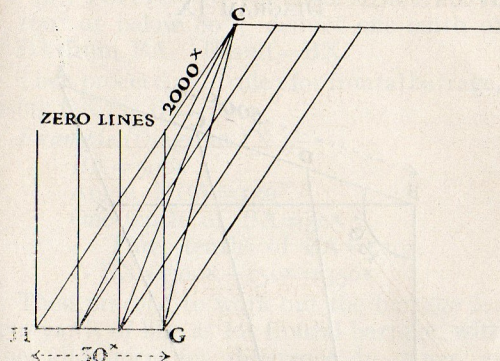
(See Paragraph 15.)

Exactly the same rules apply as for distribution, but as the ground to be barraged is a point instead of a line, in Rule 1 the frontage of the battery has to be subtracted from 0, resulting in a minus quantity.

In Rule 3 the result gives Concentration to Order instead of Distribution.

DIAGRAM VIII.

CONCENTRATION.



$$\begin{aligned} 0x - 30x &= -30x = \\ -30x \text{ at } 2,000x &= 50' = \\ 50' \div 3 &= 17' = \\ \text{to nearest } 10' &= 20'. \end{aligned}$$

Orders.—“All guns 10' right. No. 4 gun directs Concentrate 20'.”

No. 1 of No. 4 gun repeats “Concentrate 20'.”

No. 1 of No. 3 gun repeats “20' left—concentrate 20'.”

No. 1 of No. 2 gun repeats “40' left—concentrate 20'.”

No. 1 of No. 1 gun repeats “1° left—concentrate 20'.”







No. 1 of No. 1 gun repeats "9° 30' right, distribute 3° 10', elevation 6° 50'—50' differences."

When HB is a longer range than GA the procedure is as above, but the working would be from No. 1 gun, and all orders and differences would be passed down from the right. The fire order would commence with:

"No. 1 gun directs."

### COMMUNICATIONS.

No proper fire control is possible without a comprehensive system of telephonic communications.

The present establishment of signallers and equipment is quite inadequate to carry out such a system without assistance.

The following system has been tried in order to make the most of the machine gun personnel in a Division :—

(a) All signal personnel and equipment is pooled and formed into a signal section under an officer of the M.G.C. This officer is previously put through a course at a Corps or Army School.

(b) The section works under the technical supervision of the O.C. Divisional Signal Company, who will draw up the scheme of communications in conjunction with the D.M.G.O.

(c) An increase of equipment, per Division, of—

4 Fullerphones,

24 bayonet signalling shutters, makes the following system possible to carry out.

### SYSTEM OF COMMUNICATIONS.

#### 1. Offensive Operations.

(a) *Mobile Guns*.—These can communicate through the battalion report centre, in whose area they are operating.

(b) *Barrage Guns*.—Fig. 1 illustrates the system where one group of guns is affiliated to one Brigade; when batteries move forward they connect to the Brigade Forward Station.

When the Brigade Commander moves forward to the forward station, the Group Commander accompanies him, and so keeps in touch with his batteries and forward observation station. A proportion of signallers are allotted by the Machine Gun Signal Officer to each Group Commander for such operations. They work under the supervision of the Brigade Signal Officer.

#### 2. Trench Warfare.

Fig. 2 shows the system for a Division, with two Brigades in the line.



Owing to the necessity for Brigade and Battalion Commanders to be able to communicate quickly with Machine Gun Company Headquarters and the necessity of keeping messages secret, Fullerphones are required at each Machine Gun Company Headquarters. A proportion of signallers should be allotted by Machine Gun Signalling Officer to each Company in the line to work under the supervision of the Brigade Signal Officer. In cases where sniping batteries are employed these must be connected by telephone to a forward observation station, from which the controlling officer sends down the necessary fire orders to engage any target he wishes.

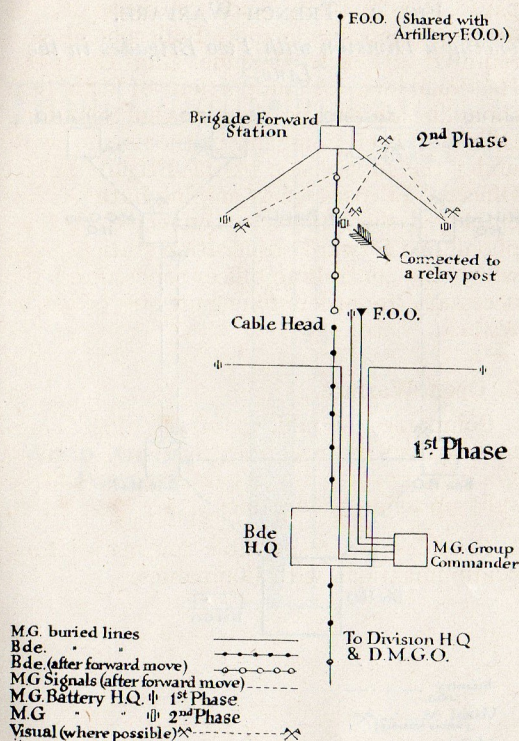
### 3. Open Warfare.

Companies should maintain their communications with sections by signal or wire. For this purpose the Signal Section will be split up among companies.

Brigades are responsible for maintaining communications with Companies.

## SYSTEM OF COMMUNICATION.

FIG. 1. BARRAGE GUNS.

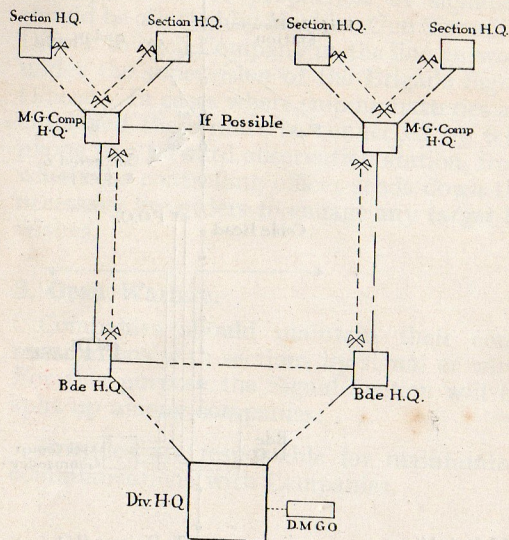




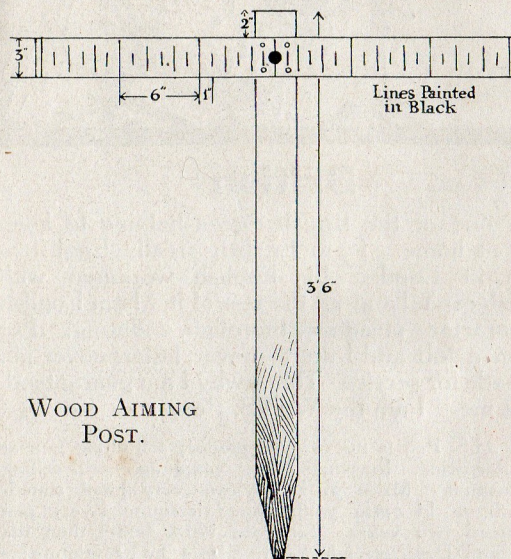
## SYSTEM OF COMMUNICATION.

## FIG. 2. TRENCH WARFARE.

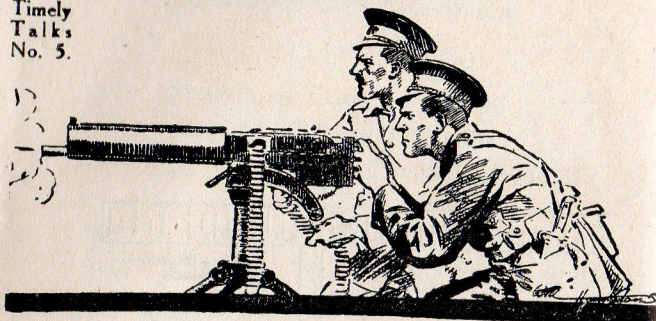
*Showing a Division with Two Brigades in the Line.*



Infantry  
LINES  
Visual (WHERE POSSIBLE)  
M.G. Lines







## British

I am one of the British forces helping to keep trade at home. I am English—really English—made in London by English workmen with English capital and all the rest of it. I am English in character—steadfast, thorough, enduring. Put me on a job and I do it—never falter, never jib. I'm made for service. That's why I am guaranteed. Prove me. I am the W.H.S. Pen.

The W.H.S. Pen is the original pioneer self-filling pen at a popular price. Introduced four years ago—still selling in thousands. Made in 72 styles—every hand suited. The nib of 14 carat gold, tipped iridium. Every pen guaranteed two years—but goes 100% better than the guarantee. Descriptive leaflet free from the proprietors:—W. H. Smith & Son, Kean Street, Kingsway, W.C.

OF ALL STATIONERS—ONE PRICE



4'6



## The Glad Hand

I always get the glad hand. I make the hand glad that holds me, for I am a good-tempered, easy-going, willing and obedient servant. Being the servant, I serve. I never raise my master's ire—never provoke ill-feeling. I never have off-days. I can work till I am exhausted—fill myself in an instant—and keep on keeping on as long as the glad hand guides me. Let me make more glad hands. I am the W.H.S. Pen. Need I make my meaning more obvious?

The W.H.S. Pen is the original pioneer self-filling pen at a popular price. Introduced four years ago—still selling in thousands. Made in 72 styles—every hand suited. The nib of 14 carat gold, tipped iridium. Every pen guaranteed two years—but goes 100% better than the guarantee. Descriptive leaflet free from the proprietors:—W. H. Smith & Son, Kean Street, Kingsway, W.C.

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4'6





**W. H. SMITH & SON**

(Viscount Hambledon, A. D. Acland,  
C. H. St. John, G. S. Awdry,  
A. D. Power)

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